OTAY BUSINESS PARK

SAN DIEGO MARSH-ELDER TRANSLOCATION PLAN
TM 5505

August 17, 2010

Prepared for the County of San Diego

Project Proponent :

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Prepared by :

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Otay Business Park
San Diego Marsh-elder Translocation Plan

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1.0 INTRODUCTION

This restoration plan provides the mitigation approach for direct impacts to the sensitive plant species, San Diego marsh-elder (*Iva hayesiana*), resulting from development of the Otay Business Park (proposed project). The mitigation measure identified herein is based on that contained in the Otay Business Park Biological Technical Report (HELIX Environmental Planning, Inc. [HELIX] 2010b). All restoration associated with this plan will occur on site within the realigned drainage channel to be designated as open space.

2.0 PROJECT DESCRIPTION

2.1 DEVELOPMENT PROJECT LOCATION

The project site (Assessor's Parcel Number 648-070-21) is located in southeastern Otay Mesa within San Diego County (Figure 1). The property lies immediately north of the U.S./Mexico border approximately 0.5 mile east of Enrico Fermi Drive. It occupies the southeastern quadrant of Section 31 within Township 18 South, Range 1 East of the U.S. Geological Survey 7.5-minute Otay Mesa quadrangle (Figure 2). The site is within the East Otay Mesa Specific Plan (EOMSP) area and is within areas designated in the County's Multiple Species Conservation Program (MSCP; County 1997) as Minor Amendment Areas and Minor Amendment Areas Subject to Special Consideration.

2.2 DEVELOPMENT PROJECT SUMMARY

The proposed Otay Business Park project is an industrial business park development located on 161.6 acres in Subarea 2 of the EOMSP. Proposed project development would impact 175.31 acres.

2.3 DEVELOPMENT PROJECT IMPACTS

HELIX prepared a Biological Technical Report that details all of the impacts and required mitigation for the Otay Business Park project (HELIX 2010b). Specifically, this translocation plan deals only with the compensatory mitigation for impacts to 11 individuals of San Diego marsh-elder resulting from the proposed development.

3.0 MITIGATION REQUIREMENTS

Mitigation for impacts to 11 San Diego marsh-elder individuals resulting from implementation of the Otay Business Park project will occur through the salvage and translocation of the on-site population to the realigned drainage channel on site, to be designated as open space (Figure 3; Table 1). Additional container stock of San Diego marsh-elder also will be installed in this area to help ensure project success.

Table 1 MITIGATION FOR IMPACTS TO SAN DIEGO MARSH-ELDER					
Scientific Name	**Common Name**	**Total Impacts**	**Mitigation**		
			Translocated	**Container Stock**	**Total**
Iva haysiana	San Diego marsh-elder	11	11	22	33

Methods for translocation of San Diego marsh-elder are included in this restoration plan. In addition to the installation of San Diego marsh-elder, the realigned drainage channel will be seeded with a native seed mix and allowed to revegetate naturally. The BOS surrounding the translocation is anticipated to support non-native grassland habitat with scattered native species, suitable for use by burrowing owls.

4.0 MITIGATION SITE

4.1 LOCATION AND SIZE OF MITIGATION AREA

San Diego marsh-elder translocation will occur within the approximately 8.90-acre on site Otay Business Park Biological Open Space (BOS). The on-site BOS is located along the southeastern edge of the site at the base of the foothills of the San Ysidro Mountains and adjacent to the U.S./Mexico border (Figure 3). The BOS encompasses a realigned drainage channel designed to convey flows from north of the site to the border. This BOS is contiguous with the adjacent proposed open space for the Otay Crossings Commerce Park site to the east. Together these open space areas provide approximately 40 acres of suitable burrowing owl habitat (foraging and nesting). Elevations within the BOS range between 482 and 512 feet above mean sea level.

The San-Diego marsh-elder translocation will occur in an approximately 0.01-acre area on the slopes adjacent to the proposed riprap bottom of the realigned drainage channel (Figure 3).

4.2 OWNERSHIP STATUS

The BOS) is owned by Otay Business Park, LLC. Contact information is as follows:

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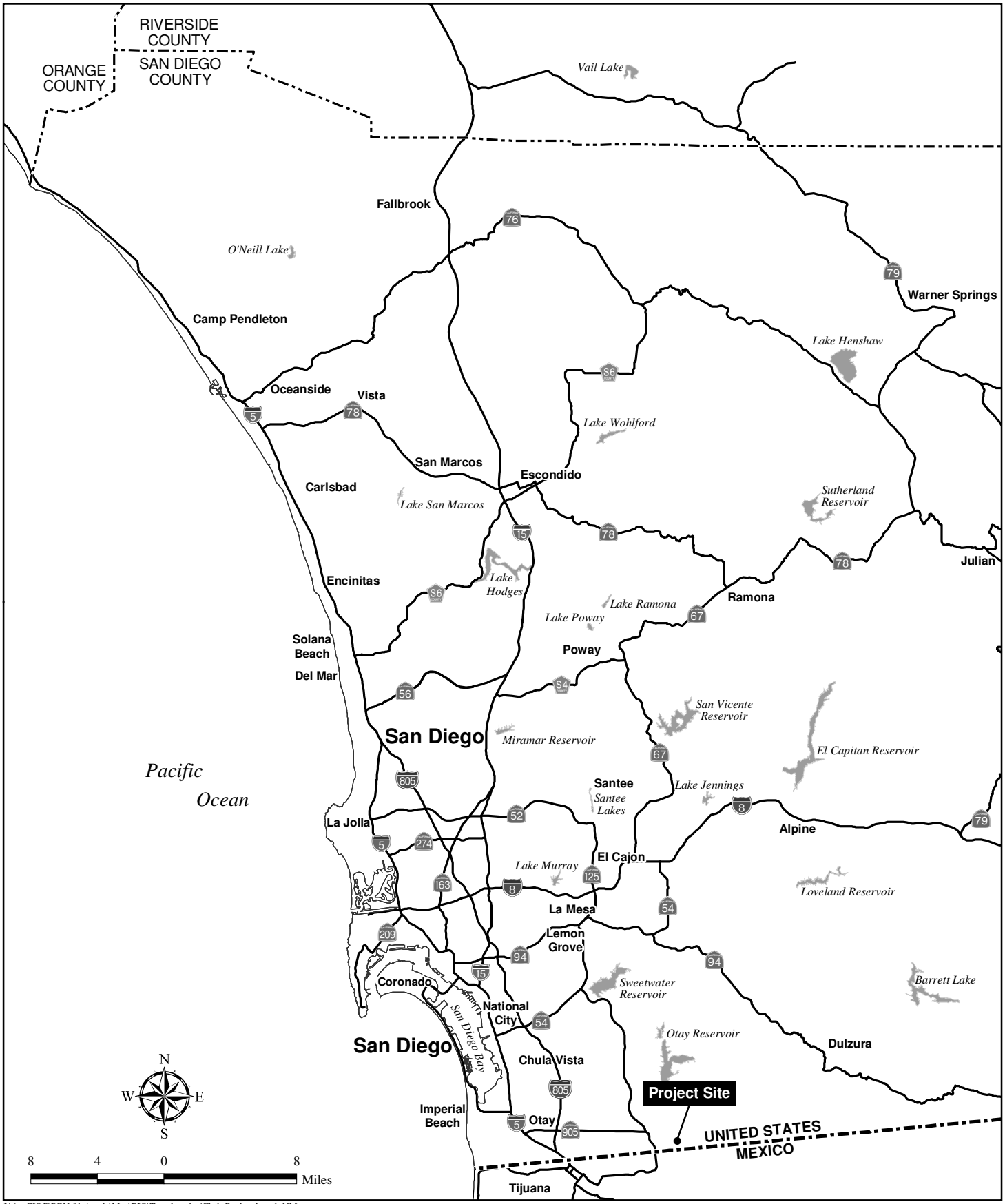
4225 Executive Square, Suite 920
La Jolla, CA 92037
(858) 535-9000 x 222

4.3 EXISTING FUNCTION AND SERVICE OF MITIGATION AREA



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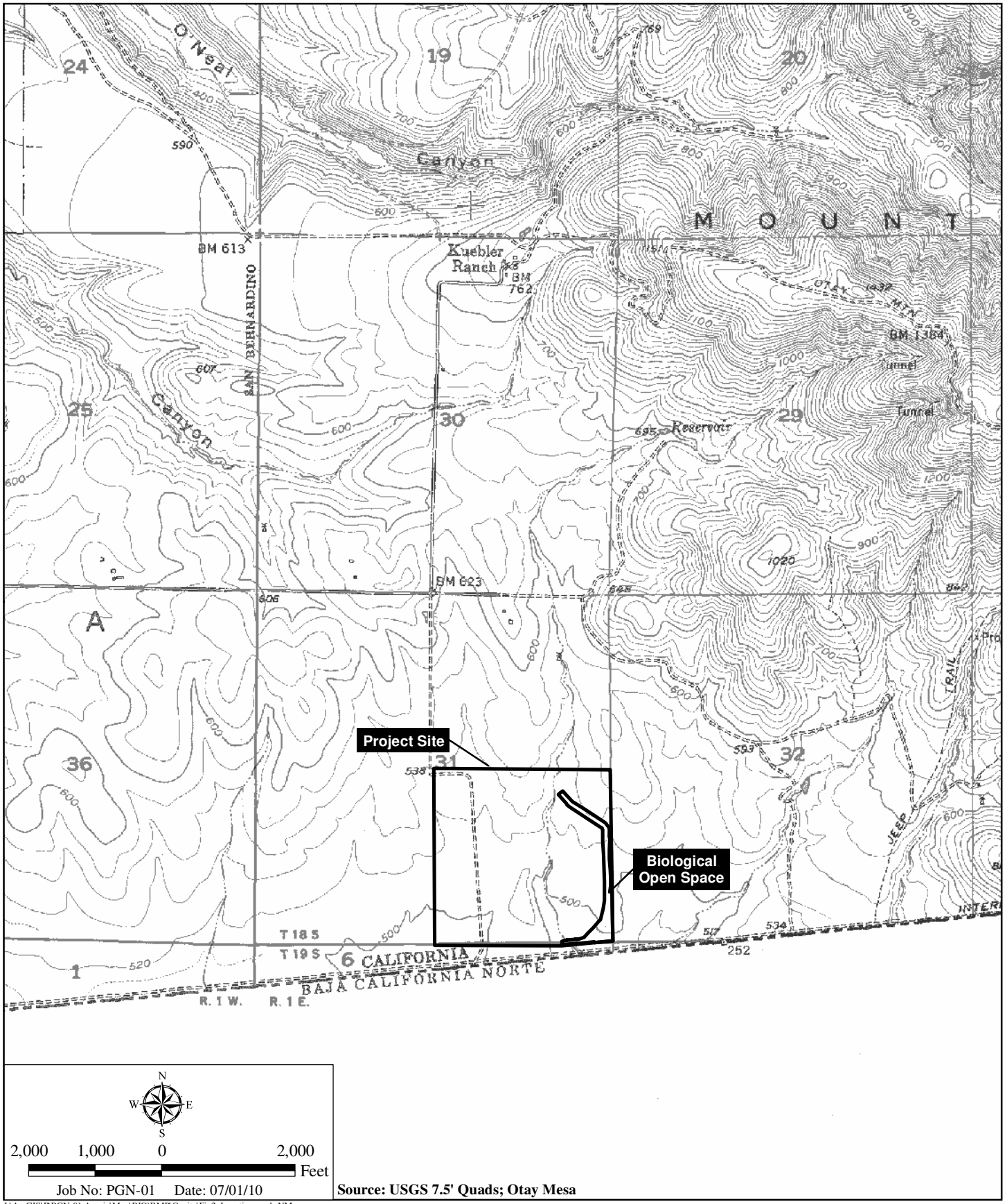
Regional Location Map

ON-SITE SAN DIEGO MARSH-ELDER TRANSLOCATION PLAN FOR OTAY BUSINESS PARK

HELIX

Figure 1



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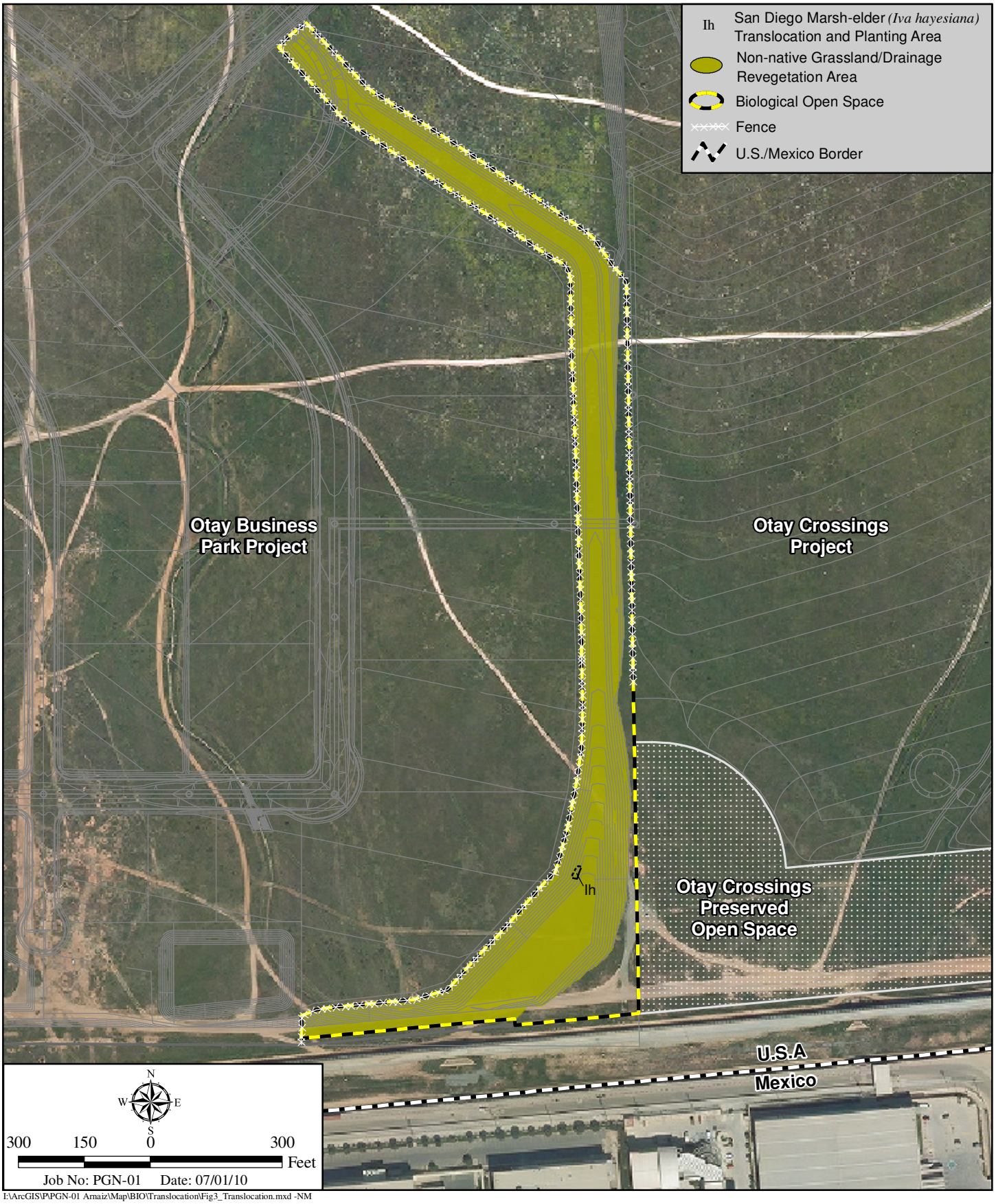
Project Location Map

ON-SITE SAN DIEGO MARSH-ELDER TRANSLOCATION PLAN FOR OTAY BUSINESS PARK

HELIX

Figure 2



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San Diego Marsh-Elder Translocation

ON-SITE SAN DIEGO MARSH-ELDER TRANSLOCATION PLAN FOR OTAY BUSINESS PARK

HELIX

Figure 3

The BOS is undeveloped with habitat consisting primarily of non-native grassland and disturbed habitat. Dirt roads cross the BOS, carved out of the non-native grassland by off-highway vehicles and Border Patrol activities. Following project construction, much of the BOS will consist of a realigned drainage channel vegetated primarily with grassland species. . The site supports non-native grassland and burrowing owls.

5.0 IMPLEMENTATION PLAN

As previously stated, in addition to the translocation of San Diego marsh-elder to the realigned drainage channel in the BOS, the realigned drainage channel will be seeded with a native seed mix consisting of a variety of upland grasses and shrubs as well as several wetland/riparian associated species. The site preparation, installation, and maintenance of this area are described in detail in sections 5.4 and 5.5.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The San Diego marsh-elder on site occurs at the top of an existing, deeply incised (approximately 6 feet), unvegetated ephemeral channel that will be impacted by project implementation. The plants are rooted in upland non-native grassland habitat, well above the water level during storm events. The existing drainage channel will be realigned to maintain flow across the mesa. The realigned channel will have a natural/rip-rap bottom and will be wider than the existing incised channel to be impacted. The realigned channel is intended to maintain flows through the site, but will not accept runoff from the Otay Business Park project. All runoff from the developed site will be collected and held in on site detention basins. As designed, the realigned channel would spread out flows, reduce velocity, allow for increased infiltration, and reduce erosion/sedimentation. The location selected for the San Diego marsh elder translocation is in a transitional zone between the channel bottom and the adjacent slopes. The San Diego marsh elder is expected to do well in this location because it will be in a more natural position relative to anticipated flows. The plants will be out of the main body of the channel and therefore not subject to damage caused by water rushing during regular rain events. During higher level rain events the San Diego marsh elder will receive some flooding. Additionally, San Diego marsh elder will be included in the seed mix for the entire BOS area. In this way the species will be able to become established in other areas that support appropriate conditions for the species.

5.2 RESPONSIBLE PARTIES

5.2.1 Project Proponent

Otay Business Park, LLC would be responsible for financing the installation, maintenance, and monitoring of the mitigation measures.

5.2.2 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of the translocation area would be the responsibility of a restoration specialist. The restoration specialist will educate all participants with regard to goals and requirements and directly oversee San Diego marsh-elder translocation. If necessary, the restoration specialist will provide the permittee and contractor with a brief report, including a written list of items in need of attention following each monitoring visit. The contractor will be responsible for carrying out all required measures in a timely manner. The restoration specialist will notify the contractor and responsible party if any requested remediation is not addressed.

5.2.3 Installation/Maintenance Contractor

The installation and maintenance contractor(s) will: have native habitat restoration experience; be under direction of the restoration specialist; be responsible for completion of translocation, planting, seeding, and maintenance of translocation area. The restoration specialist will educate the contractor(s) on the installation and maintenance of native plant species.

After the installation contract is completed, the project proponent(s) will hire a maintenance contractor for the duration of the 5-year monitoring period. The maintenance contractor and the installation contractor may be the same entity. The project proponent may change contractors at its discretion. The maintenance contractor will be educated as to the maintenance of translocated plants and the difference between native plants and weeds. The maintenance contractor will maintain the approximately 0.01-acre San Diego marsh elder translocation. Service will include but not be limited to weed control, trash removal, watering, fence repair, and dead plant replacement. All activities conducted will be seasonally appropriate and approved by the restoration specialist. The maintenance contractor will meet the restoration specialist at the site when requested and will perform all checklist items in a timely manner, as directed by the project proponent.

5.3 IMPLEMENTATION SCHEDULE

San Diego marsh-elder salvage and transplantation will occur between November and February, after the plants have become dormant. San Diego marsh-elder will be salvaged before any project site grading occurs. Efforts will be made to reduce the time between salvage and installation.

5.4 SAN DIEGO MARSH-ELDER SALVAGE

The 11 individuals of San Diego marsh-elder to be translocated exist along the north-south drainage in the northeastern quadrant of the site. Just prior to collection, and under the direction of the restoration specialist, plants will be pruned back to approximately 1 foot. Transplants will be harvested using a tree spade or backhoe, being careful not to harm the root mass. Following collection, plants should be placed in a holding bed or pot and carefully transported to the translocation area. If the plants can not be immediately planted in the receptor site they will be taken to a nursery, potted, and maintained in a healthy condition until they can be planted.

5.5 TRANSLOCATION SITE PREPARATION

The majority of site preparation would be accomplished by the project proponent during the construction and realignment activities of the drainage channel. Prior to plant installation, the translocation area will be mowed, and the cuttings and thatch will be raked up by hand and disposed of in a legal manner.

A temporary, non-barbed, 3-wire fence will be constructed around the 0.01-acre translocation site. One aluminum sign will be posted on the fence, providing notice in both English and Spanish that the area contains sensitive plant species and that trespassing is prohibited.

5.6 TRANSLOCATION PLANTING PLAN/ INSTALLATION

Salvaged San Diego marsh-elder will be planted and evenly spaced within the translocation area. Flags will be installed in the soil near transplanted San Diego marsh-elder, so that the transplanted individuals can be differentiated from the container stock plantings. The 22 container stock (1-gallon) of San Diego marsh-elder will be planted in the areas surrounding and in-between the transplants. Root bound container stock will not be accepted from the nursery. All planting will be overseen by the restoration specialist, and plants will be positioned prior to planting. Planting holes should be excavated to 1.5 times the planting depth, to loosen the soil. Prior to installing transplants and container stock, the planting hole will be filled with water and allowed to drain, to build soil moisture. Transplants/container stock will be planted such that after soil settling, the crown of the root ball is 1-inch above finish grade. The holes will be backfilled around the transplants/container stock with native soil, and the holes will be watered immediately after planting, to settle the soil. Any voids or settlement should be filled with additional native soil, and the watering repeated.

5.7 REALIGNED DRAINAGE CHANNEL REVEGETATION

A native seed mix (commercially obtained) will be applied to the entire 8.9 acres of the realigned drainage channel, including the slopes, bottom, riprap areas, and San Diego marsh-elder translocation area. The seed mix is presented in Table 2. This palette includes a mix of shrub, forb, and native bunchgrass species. To take advantage of the rainy season and minimize seed predation, all seeding will occur between November 15 and January 15.

5.8 IRRIGATION PLAN

Translocated San Diego marsh-elder and container stock will be hand-watered at the time of planting, and then periodically (as needed) during the installation and maintenance period. A water truck may be brought to the site, and water may be moved to the translocated plants and container stock by hose or watering can. The water truck will remain on designated roads.

5.9 AS-BUILT CONDITIONS

The restoration specialist will submit to the County/Agencies within 6 weeks of completion of installation a map showing the as-built conditions. Areas of grading (realigned drainage channel) and seeding, in addition to the areas of translocation, shall be shown on the map.

Table 2 BIOLOGICAL OPEN SPACE SEED MIX			
Scientific Name	**Common Name**	**Pounds per Acre**	**Amount to be Ordered†**
Ambrosia psilostachya	western ragweed	3	27
Artemisia californica	California sagebrush	3	27
Cressa truxillensis	alkali weed	1	9
Encelia californica	California encelia	3	27
Eriogonum fasciculatum	flat-top buckwheat	3	27
Eriophyllum confertiflorum	golden yarrow	3	27
Gnaphalium californicum	California cudweed	1	9
Heliotropum curvassavicum	salt heliotrope	1	9
Isocoma menziesii	goldenbush	3	27
Iva hayesiana	San Diego marsh elder	3	27
Juncus bufonius	toad rush	0.5	4.5
Juncus mexicanus	Mexican rush	1	9
Lasthenia californica	common goldfields	3	27
Lotus scoparius	deerweed	3	27
Lupinus bicolor	miniature lupine	3	27
Nassella pulchra	purple needlegrass	6	53.5
Plantago erecta	dot-seed plantain	5	44.5
Sisyrinchium bellum	California blue-eyed grass	1	9
	TOTAL	**46.5**	**417.5**

†Based on 8.9 acres

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE ACTIVITIES

A 5-year maintenance program is proposed to ensure the successful establishment and persistence of San Diego marsh-elder within the translocated area. The maintenance program will involve removal of trash, weed control, fence repair, and remedial measures deemed necessary for restoration program success (e.g., watering).

6.1.1 Trash Removal

The maintenance contractor will remove any trash encountered within the fenced translocation area and dispose of it in a legally acceptable fashion.

6.1.2 Weed Control

Weeds within the San Diego marsh-elder translocation area will be removed by hand tools whenever possible, but focused herbicide application may be used if needed and approved by the restoration specialist. Care will be taken to avoid harming individuals of San Diego marsh-elder. Weeds will be removed from the fenced translocation area and disposed of in a legal manner.

6.1.3 Transplant/Container Stock Irrigation

Transplanted San Diego marsh-elder and container stock will be hand watered at least twice a month, if necessary, during the first 2 years of maintenance and monitoring. Hand watering may not be necessary during the rainy months.

6.1.4 Fence Repair

The 3-strand barbless wire fence will be maintained in good order by the maintenance contractor. At the successful completion of the translocation effort, the contractor will remove the fence and posts. The maintenance of the fence bordering the majority of the BOS is not the responsibility of the maintenance contractor. This fencing will be installed as part of the grading/construction effort for the Otay Business Park project.

6.2 HABITAT MAINTENANCE SCHEDULE

Regular maintenance, trash removal, and weed control of the San Diego marsh-elder translocation area will be conducted during the first 5 years following implementation of the mitigation program or until the mitigation program is deemed successful. Maintenance personnel will visit the site at least monthly for the first 2 years of the maintenance and monitoring period, and quarterly thereafter.

7.0 SUCCESS CRITERIA

As discussed in Section 3.0, mitigation for impacts to San Diego marsh-elder will be met through translocation of impacted individuals from the Otay Business Park site to the on-site BOS. The goal of the San Diego marsh-elder translocation effort is to obtain 90 percent survivorship of the 33 planted San Diego marsh-elder within the translocation area at the end of the 5-year maintenance and monitoring program. At the end of each year, survivorship of San Diego marsh-elder will be tabulated. If there is a survivorship of less than 90 percent (30 plants), additional San Diego marsh-elder will be obtained from a native plant nursery and added to the translocation area, to replace lost individuals. Any additional San Diego march elder that becomes established anywhere within the BOS will be counted toward the final 30 individual plant goal.

8.0 MONITORING PLAN

8.1 MONITORING METHODS

Monitoring will be carried out by the restoration specialist to assess the progress of the translocation effort and determine any appropriate remedial measures. Quantitative success criteria presented above (Section 7) will be used to measure mitigation success.

8.1.1 Maintenance Monitoring

Monthly inspections of the transplants and maintenance efforts within the translocation area will be performed during Year 1, every other month during Year 2, and every 3 months during the remainder of the monitoring period. As conditions warrant, additional site visits may be required during the initial installation/establishment period.

8.1.2 Annual Monitoring

An annual monitoring visit will be conducted each year of the 5-year maintenance and monitoring period, the first occurring approximately 1 year after installation of San Diego marsh-elder transplants and container stock. Survivorship of transplanted San Diego marsh-elder and container stock plantings will be recorded. A plant species list will be compiled of all species observed within the translocation area. A list of wildlife species observed or detected within the BOS also will be recorded.

Photo documentation points shall be established for the translocation area, and photographs will be taken of each pool during the annual monitoring event. Representative photos will be provided in the annual monitoring report.

8.2 ANNUAL REPORTS/INVITATION

As part of the monitoring program, annual reports prepared by the restoration specialist would be submitted to the County/Agencies evaluating the success of the San Diego marsh-elder translocation effort to date, along with recommendations for future work that may be deemed necessary. To detect the overall trend of the site, the annual monitoring report will contain comparisons of the monitoring data for the years that data are collected.

8.3 REMEDIAL MEASURES

If the survivorship goal is not being met (including recruits within the BOS), additional container stock will be installed. Corrective measures also may include, but are not limited to, an expansion or relocation of the planting area within the BOS, upon approval by the County/Agencies.

9.0 COMPLETION OF MITIGATION

9.1 NOTIFICATION OF COMPLETION

The permittee shall notify the County/Agencies of completion of the San Diego marsh-elder translocation effort through submittal of a final (Year 5) monitoring report. After receipt of the final monitoring report, the County/Agencies may inspect the mitigation site to determine the success of the translocation effort. After evaluating the final report, the County/Agencies shall determine if the translocation effort is acceptable.

9.2 LONG-TERM MANAGEMENT

The San Diego marsh-elder translocation area is located within the on-site Otay Business Park BOS. Long-term management will be conducted according to the On-site Resource Management Plan (HELIX 2010a).

10.0 CONTINGENCY MEASURES

10.1 INITIATING PROCEDURES

If the County/Agencies determine upon receipt of any of the annual monitoring reports that the translocation effort is not meeting the success criterion (survival of 30 San Diego marsh-elder plants) for the project, they shall notify the project proponent in writing that the translocation effort may require augmentation for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives to the suggestions of the County/Agencies.

10.2 FUNDING MECHANISM

The permittee (Section 4.5) shall be responsible for all costs associated with any remedial measures.

10.3 RESPONSIBLE PARTIES

The permittee shall be the responsible party for any remedial measures.

11.0 LIST OF PREPARERS

The following individuals contributed to the preparation of this report.

Greg Mason†	B.S., Natural Resources Planning & Interpretation, Humboldt State University, 1992
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Jasmine Watts*	B.S., Ecology and Systematic Biology, California Polytechnic State University, 2001

*Primary preparer
†County-approved Biological Consultant

12.0 REFERENCES

County of San Diego. 1997. Multiple Species Conservation Program, County of San Diego Subarea Plan. October 22.

HELIX Environmental Planning, Inc. 2010a. On-site Resource Management Plan for Otay Business Park. Revised June 23.

2010b. Biological Technical Report for Otay Business Park. June 23.